

REMARKS

Newly presented Claims 24-29 are directed to specific embodiments of the present invention. Support for newly presented Claims 24-26 can be found on specification page 8, lines 1-4. No new matter has been added.

Claims 1, 3-7, 12, 16-19, 22 and 23 have been rejected under 35 USC 102(b) as being anticipated by Johnson taken in view of the evidence given in Bussink et al. Claims 1, 4-7 and 16-23 have been rejected under 35 USC 102(e) as being anticipated by DeMeo et al taken in view of the evidence given in Kawamura et al. Claims 1 and 4-7 have been rejected under 35 USC 102(b) as being anticipated by Kawamura et al. Claims 20 and 21 have been rejected under 35 USC 103(a) as being unpatentable over Johnson in view of Emde. Applicants respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

As discussed previously, the instant invention, in its broadest embodiment, is directed to a thermoplastic resin composition comprising 2.5 to 15 wt.% of a styrene-based thermoplastic elastomer and 85 to 97.5 wt.% of a tungsten powder and also to a thermoplastic molded article made of this thermoplastic resin composition. The inventive thermoplastic resin composition yields a molded article which has a high flexibility and excellent processability while yet still possessing a specific gravity as high as lead and is used as a material for forming different types of objects requiring both a high specific gravity and flexibility, such as a balance weight. This makes the thermoplastic resin composition of the present invention able to be substituted for lead in various uses and avoiding the environmental and toxicity problems associated with lead. Applicants respectfully urge reconsideration in light of the following comments.

The Johnson reference discloses an enteral feeding tube comprising a unitary, molded weighted bolus insert molded to a preformed tubular stem. The bolus and stem are each formed

from a polymeric composition comprising a thermoplastic elastomeric block copolymer and an essentially linear polysiloxane. The bolus is weighted with tungsten powder mixed into the polymeric composition. The tungsten powder is disclosed as being present in an amount of from 85 to 90 wt.%. The composition of Johnson further requires polysiloxane and mineral oil as essential components. This is due to the articles of Johnson being used as enteral feeding tubes in order to avoid irritation of the patient's tissues. In contrast thereto, the composition of the present invention is not used as a feeding tube for a patient but is instead used as a balance weight for a wheel or sporting goods. As such, the composition of the present invention does not require polysiloxane and mineral oil, which are essential in the composition of Johnson. Newly presented Claims 27-29 expressly exclude the polysiloxane and mineral oil therefrom and newly presented Claims 24-26 require that the tungsten powder be present in an amount of at least 93.5 wt.%. Since the upper limit of tungsten content in Johnson is 90 wt.%, these claims are even further distinguished over the Johnson reference.

The DeMeo et al reference is directed to a radiation detectable and protective articles. This application is a CIP of application Serial No. 10/620 954 filed on July 16, 2003, which is a CIP of application Serial No. 10/238 160 filed on September 9, 2002, which is a CIP of application Serial No. 09/940 681 filed on August 27, 2001, which is a CIP of application Serial No. 09/206 671 filed on December 7, 1998. A review of the parent applications of the present application has shown that the description regarding the composition comprising 85% tungsten and 15% of a polymer was added when the DeMeo et al application was filed on December 20, 2004. Since the filing date of this application is after the present U.S. application date of October 9, 2001, the disclosure in this reference regarding 85% tungsten and 15% of a polymer is not available as prior art against the present application.

Therefore, the rejection made in the present application over the DeMeo et al reference should be withdrawn.

The Kawamura et al reference discloses a radiation shielding material in which tungsten powder is dispersed into unvulcanized fluororubber in advance so that the mixture is vulcanized and molded. In the Office Action, the Examiner draws Applicants' attention to Example 4 of this reference, which is said to disclose a composition comprising 92% tungsten and 8% styrene thermoplastic elastomer, i.e., styrene butadiene rubber. That is, it appears that the Examiner is stating that styrene butadiene rubber is a styrene thermoplastic elastomer. Applicants respectfully disagree with this position of the Examiner.

Enclosed previously for the Examiner's benefit was an excerpt from the Practical Glossary for Plastics, provided in Japanese, and a partial translation of lines 8-30 of the left column of page 324. As can be seen from the translation, a styrene-butadiene thermoplastic elastomer is not the same as styrene-butadiene rubber, SBR. Although the elastomer is made from styrene and butadiene, like styrene-butadiene rubber, this elastomer is a block copolymer, as discussed in the present specification, while styrene-butadiene rubber is a random copolymer. Vulcanization is required for styrene-butadiene rubber but not necessary for the elastomer because crystalline polystyrene portions of the elastomer can act as cross-linking points. Additionally, the elastomer can be easily molded by extrusion, injection molding, etc., as with other general thermoplastic resins. It has other properties such as superior cold-resistance to natural rubber and styrene-butadiene rubber. It also has the defects of less heat-resistance and less solvent-resistance than styrene-butadiene rubber. As such, the presently claimed styrene thermoplastic elastomer is clearly not the same as styrene-butadiene rubber and the Kawamura et al reference neither anticipates Claims 1 and 4-7 nor makes these claims obvious.

The Emde reference discloses a medical tube for enteral feeding as does Johnson. The medical tube of Emde is made up of a flexible tube having a closure cap at its distal end. The closure cap can have a metal head to increase the weight of the tube and stiffen the distal end. For this purpose, steel is used. However, in the present invention, the inventive composition is used as a balance weight for a wheel for sporting goods and requires a high flexibility and density. The high flexibility is attained through the use of metal powder. Therefore, the purpose and components of the compositions of Johnson and Emde are quite different from that of the present invention. Even if the steel of Emde was added to Johnson, the composition of Johnson would still be different from that of the present invention, and the combination of these references does not disclose the presently claimed invention.

Reconsideration of the present application and the passing of it to issue is respectfully solicited.

Respectfully submitted,



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